



Purchasing Receipts

Plex 7/18/2018 5:01 PM dart. Tollis. Andrew

200 Aurora Industrial Pkwy
Aurora OH 44202-8087
330-995-5500
cle.sales@mcmaster.com

Dart Aerospace Ltd
1270 Aberdeen St
Hawkesbury ON K6A 1K7
Canada

Purchase Order
PO040154

Order Placed By
Chantal Lavoie

McMaster-Carr Number
4799296-03

Page 1 of 1

07/05/2018

Line	Product	Ordered	Shipped
3	2572T77 Ultra-Machinable 360 Brass Rod with Certification, 2-1/2" Diameter, 6 Feet Long	1 Each	1

Shipped separately from our Cleveland warehouse on 06/11

1	8572K35 White Delrin® Acetal Resin Rod, 3-1/2" Diameter, 3' Length	3 Feet	3
2	2572T38 Ultra-Machinable 360 Brass Rod with Certification, 1/2" Diameter, 6 Feet Long	1 Each	1
4	91030A445 Low-Strength Steel Flange Nut, Black-Oxide, 5/8"-18 Thread Size	10 Each	10
5	92620A563 Zinc Yellow-Chromate Plated Hex Head Screw, Grade 8 Steel, 1/4"-28 Thread Size, 3/4" Long	1 Pack	1
6	98381A508 Dowel Pin, Alloy Steel, 3/16" Diameter, 3/4" Long	1 Pack	1
7	5051K271 F1 Felt Strip, Firm, Adhesive Backing, 10 Feet Long, 1-1/2" Wide, 1/2" Thick	1 Each	1
8	1764A31 Spring-Loaded Pull Handle with Mounting Plate, Folding, Polished Zinc-Plated Steel, 3-1/8" Projection	8 Each	8
9	8932K54 Oil-Filled 841 Bearing Bronze Rod, 2-1/4" Diameter, 6-1/2" Long	4 Each	4



Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200

PURCHASE ORDER **PO040154**

Supplier: MCM001-VU
McMaster-Carr Supply Co,
P.O. Box 7690
Chicago, IL 60680-7690 USA
Phone: 330 995 5500
Fax: 330 995 9600

PO No: PO040154
PO Date: 6/11/18
Due Date: 6/14/18
Purchase Order
Revision:
Revision Date:

E-MAILED
JUN 11 2018

Ship-To Contact: Lavoie, Chantal
clavoie@dartaero.com

Ship To: 1270 Aberdeen Street
Hawkesbury
ON
K6A 1K7 Canada
Phone: 613-632-5200

Via: Ground
Pynt Terms: 2% 10 Net 30
Freight Terms:
Special Comments:

Items

Line Item	Part	Supplier Part No	Description	Status	Due Date	Order Quantity	Received Quantity	Balance	Unit Price (USD)	Extended Price
1	MDELNR3.500W	8572K35	Delrin Round Bar, White R3.500"	Firmed	6/14/18	3 ft	0 ft	3 ft	\$68.00/ft	\$204.00
2	MT-BRASS-C360-R0.500	2572T38 6 FT	Brass C360 Round Bar 0.500"	Firmed	6/14/18	6 ft	0 ft	6 ft	\$9.158333/ft	\$54.95
3 AT	MT-BRASS-C360-R2.500	2572T77 6FT	Brass C360 Round Bar 2.500"	Firmed	6/14/18	6 ft	0 ft	6 ft	\$117.94166/ft	\$707.65
4	91030A445	1/pk	Flange Nut receive ea	Firmed	6/14/18	10 Ea	0 Ea	10 Ea	\$3.51/Ea	\$35.10
5	92620A563	100/pk	Screw receive ea	Firmed	6/14/18	100 Ea	0 Ea	100 Ea	\$0.1269/Ea	\$12.69
6	98381A508	50/pk	Dowel Pin 3/16" X 3/4" (Mcmaster)	Firmed	6/14/18	50 Ea	0 Ea	50 Ea	\$0.156/Ea	\$7.80
7	RBE350A91-2381-01-13	5051K271 10 ft	Felt Pad w/ Adhesive Back	Firmed	6/14/18	10 ft	0 ft	10 ft	\$7.75/ft	\$77.50
8	RBE350A91-2381-01-21	1764A31	Folding Pull Handles	Firmed	6/14/18	8 Ea	0 Ea	8 Ea	\$7.20/Ea	\$57.60
9	90935A148	100/pk	Pan Head Screw	Firmed	6/14/18	100 Ea	0 Ea	100 Ea	\$0.0348/Ea	\$3.48

100x sp 18-6-12

Items										
Line Item	Part	Supplier Part No	Description	Status	Due Date	Order Quantity	Received Quantity	Balance	Unit Price (USD)	Extended Price
10	MBRONZR2.250	8932K54 .54" per length	Bronze Round Bar 2.250" : MATERIAL: OIL IMPREGNATED SINTERED BRONZE ROUND BAR AS PER SAE 841 TYPE 1, CLASS A OR AMS 4805 OR ASTM B438 GRADE 1, TYPE 2 OR MIL-B-5687D TYPE 1, GRADE 1 receive ft	Firmed	6/14/18	2.16 ft	0 ft	2 ft	\$195.29629/ft	\$421.84
Line Item Note 4 pcs of .54" = 2.16 ft										
Grand Total:										\$1,582.61

Order Notes

Procurement Quality Clauses

A005 RIGHT OF ENTRY

A016 PERSONNEL QUALIFICATION

A026 CERTIFICATION OF MATERIAL CONFORMANCE

A032 DOCUMENT SPECIAL REQUIREMENTS

A033 STATEMENT OF CONFORMITY/TEST RECORDS FOR NAS, AN and MS FASTENERS

A040 NOTIFICATION OF QUALITY ESCAPE

A041 QUALITY MANAGEMENT SYSTEM

A042 DART NOTIFICATION BY SUPPLIER

A043 RETENTION OF QUALITY DOCUMENTS

A048 COUNTERFEIT PARTS AVOIDANCE, DETECTION, MITIGATION AND DISPOSITION PROGRAM

A049 SUPPLIER AWARENESS

Terms & Condition of Purchasing(Suppliers) and Procurement Quality Clauses are an integral part of our AS9100 requirements. To learn in detail, please visit www.dartaerospace.com for further explanation.

Plex 6/11/18 2:05 PM dart.lavoie.chantal

White Delrin® Acetal Resin Rod

3-1/2" Diameter

Delivers tomorrow 10-12 pm
\$204.00 Each
8572K35



Material	Delrin® Acetal Plastic
Cross Section	Round
Shape	
Construction	Solid
Texture	Smooth
Color	White
Clarity	Opaque
Diameter	3 1/2"
Diameter	0" to +0.250"
Tolerance	
Tolerance Rating	Oversized
Length	3 ft.
Hardness	Rockwell M90
Hardness Rating	Hard
For Use Outdoors	No
Temperature	-20° to 180° F
Range	
Impact Strength	1.00 ft.-lbs./in.
Impact Strength	Good
Rating	
Tensile Strength	9,000 psi
Tensile Strength	Good
Rating	
Specifications	ASTM D6100,
Met	NSF/ANSI Standard 51 for Food Contact, NSF/ANSI Standard 61 for Drinking Water
Density	0.051 lbs./cu. in.
Coefficient of	0.20
Friction	
Dielectric	435 V/mil
Strength	
Water Absorption	0.30%
Coefficient of	8.5 × 10 ⁻⁵ in./in./°F
Thermal	
Expansion	
RoHS	Compliant

Chantal Lavoie

From: David Duval
Sent: Monday, June 11, 2018 1:22 PM
To: Chantal Lavoie
Subject: FW: RBE350A91-2381-01

Need receive routes for:

RBE350A91-2381-01-13 (McMaster Carr #5051k27) Need QTY4 of 10 feet long
RBE350A91-2381-01-21 (McMaster Carr #1764A31) QTY8

Need to order:

McMaster Carr #90935A148 1 PACK of 100

Thanks.

DAVID DUVAL
Production Engineering Supervisor

mbianzo 2.250

From: Michael Lee
Sent: June-11-18 11:44 AM
To: David Duval <dduval@dartaero.com>
Subject: RE: RBE350A91-2381-01

Hey David,

I just took a look on McMaster, the P/N specified on the drawing is available.

5051K27

Might have just been a typo ?

Mike

From: David Duval
Sent: Monday, June 11, 2018 11:23 AM
To: Michael Lee <mlee1@dartaero.com>
Subject: RE: RBE350A91-2381-01

Hi would you be able to help me this please



Non-Ferrous Metal Works (SA) (Pty) Ltd

EXTRUSION DIVISION

1 The Avenue East, Prospection, Kwa-Zulu Natal, South Africa Reg. No.: 1951/000559/07

Telephone: +27 (31) 902 7470 Fax: +25 (31) 902 8865

TEST CERTIFICATE

Customer AVIVA METALS, INC. PO BOX 800818 HOUSTON TEXAS 77280 United States	Test Certificate Number	COC022691
	Works Order Number	WO0021809
	Sales Order Number	SO00559573
	Delivery Note No	SO-DN00009007
	Invoice Number	SO-IN00309504
	Purchase Order No.	HOU-13191-KZ
	Alloy	360
Quantity Ordered	8000 Lbs	
Weight Despatched	4334.244 Lbs	
Description 2-1/2" DIA X 12 FT ROUND BAR Free Cutting Brass HALF HARD	Specifications ASTM B16 C36000 [10-2015] ASTM B249 [17]	

Mechanical/Physical Test Results

Size 1	Size 2	Area	Yield Strength		Tensile Strength		Elongation	Hardness		
mm	mm	mm ²	Kg/mm ²	PSI	Kg/mm ²	PSI	%	Vickers	Brinell	Rockwell
20.00	0.00	314.20	28.48	40,492.80	37.87	53,855.43	33.00	0.00	0.00	61.70
19.99	0.00	313.89	28.73	40,857.23	38.07	54,135.83	32.50	0.00	0.00	61.70

Chemical Composition

Charge Number	Cu	Zn	Fe	Mn	Al	Ni	Sn	Pb	Si	As	P	Te
E1501	61.220	35.191	0.280	0.000	0.000	0.100	0.300	0.890	0.000	0.000	0.000	0.000

Charge Number	Sb	Mg	Ti	Co	Cd	Sr	Cr	Ca	Other
E1501	0.019	0.000	0.000	0.000	0.000	0.000	0.000	0	0.000

APPROVED

3:36 pm, May 17, 2018
ANITA MCGRAY, MTR Administrator



Remarks

MATERIAL HAS PASSED THE MERCUROUS NITRATE CRACK TEST IN ACCORDANCE WITH ASTM B-154 SPECS [12] WHERE APPLICABLE

QUALITY
CONTROLLED
COPY

We certify that the material is free from mercury contamination
Signed for on behalf
Non-Ferrous Metal Works(SA) (PTY) Ltd

Quality Manager

2018/04/24

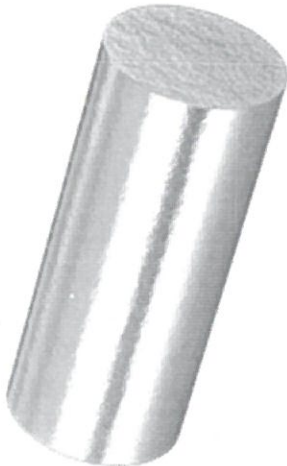
Date

Metallurgist



Ultra-Machinable 360 Brass Rod
with Certification, 2-1/2" Diameter

2572177



Material	360 Brass
Cross Section Shape	Round
Construction	Solid
Appearance	Plain
Diameter	2 1/2"
Diameter Tolerance Range	-0.006" to 0.006"
Tolerance Rating	Standard
Yield Strength	15,000 psi
Fabrication	Cold Worked
Temper	H02
Temper Rating	1/2 Hard
Hardness	Rockwell B25
Hardness Rating	Soft
Certification	Material Certificate with Traceable Lot Number and Test Report
Heat Treatable	No
Specifications Met	ASTM B16
Density	0.307 lbs./cu. in.
Surface Resistivity	39.9 Ohms
Melting Point Temperature	1630° F
Modulus of Elasticity	14.0 ksi × 10 ³

Thermal Conductivity	67 Btu/hr.-ft.-°F @ 68° F
Elongation	25%
Material Composition	
Copper	60-63%
Iron	0-0.35%
Lead	2.5-3.7%
Silicon	0-0.17%
Zinc	32.95-37.15%
Length Tolerance Range	-0.5" to 0.5"
Length	1/2 ft., 1 ft., 2 ft., 3 ft., 6 ft.
RoHS	Not Compliant

These rods come with a traceable lot number and test report. With the highest lead content of all the brass alloys, 360 offers the best machinability. Often called free-machining and free-cutting brass, it stands up to high-speed drilling, milling, and tapping operations with minimal wear on your tools. It's commonly used for gears, pinions, and lock components.

SPECIFICATION CONTROL DRAWING

PURCHASE MATERIAL:

SPECIFICATION:

PART NUMBER:

EXAMPLE:

C360 BRASS
ASTM B16

MT-BRASS-C360-R-[D.DDD]

WHERE D.DDD IS DIAMETER IN INCHES

MT-BRASS-C360-R-0.250

TOLERANCES PER MANUFACTURER SPECIFICATIONS

REV.	DESCRIPTION	ECN #	DATE	BY	APPROVED
A	NEW ISSUE	17-732	17.11.22	VM	WM

DART AEROSPACE Hemelock, Ontario, Canada	
TITLE BRASS C360 ROUND BAR	
DESIGN NO. MT-BRASS-C360-R	REV. A
DESIGN DT. VM 11/11/2017	DATE 11/11/2017
QUANTITY VM 11/11/2017	QUANTITY 11/11/2017
PREPARED SAC 11/08/2017	PREPARED SAC 11/08/2017
APPROVED 11/11/2017	APPROVED 11/11/2017
DATE 11/11/2017	DATE 11/11/2017
SCALE N/A	WEIGHT N/A
SHEET 1 OF 1	
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MATERIAL RECEIPT INSPECTION FORM

MATERIAL: MT-Brass - C360-R2.500
 DATE: 18/07/18

PO / BATCH NO.: P0040154/S093455

MATERIAL CERT REC'D: Yes
 QUANTITY RECEIVED: 6'
 QUANTITY INSPECTED: 6'
 QUANTITY REJECTED: 0

THICKNESS ORDERED: 2.50"
 THICKNESS RECEIVED: 2.500"
 SHEET SIZE ORDERED: —
 SHEET SIZE RECEIVED: —

DESCRIPTION	NCR (Check Y/N)		COMMENTS
SURFACE DAMAGE	Y	<input checked="" type="radio"/> N	
CORRECT FINISH	<input checked="" type="radio"/> Y	<input checked="" type="radio"/> N	
CORROSION	Y	<input checked="" type="radio"/> N	
CORRECT GRAIN DIRECTION	<input checked="" type="radio"/> Y	<input checked="" type="radio"/> N	
CORRECT MATERIAL PER M-DRAWING	<input checked="" type="radio"/> Y	<input checked="" type="radio"/> N	ASTM B16
CORRECT THICKNESS	<input checked="" type="radio"/> Y	<input checked="" type="radio"/> N	
PHOTO REQUIRED	Y	<input checked="" type="radio"/> N	
CORRECT REF # TO LINK CERT	<input checked="" type="radio"/> Y	<input checked="" type="radio"/> N	P0040154
CORRECT MATERIAL IDENTIFICATION	<input checked="" type="radio"/> Y	<input checked="" type="radio"/> N	
CORRECT M# ON THE MATERIAL	<input checked="" type="radio"/> Y	<input checked="" type="radio"/> N	
DOES THIS MATERIAL REQUIRE ENGINEERING SIGN OFF	Y	<input checked="" type="radio"/> N	
DOES THIS REQUIRE AN EXTRUSION REPORT	Y	<input checked="" type="radio"/> N	

CUT SAMPLE PIECE OF MATERIAL AND PREFORM A HARDNESS CHECK. RECORD RESULTS BELOW					
	HRC	HRB	DUR A	DUR D	WEBSTER
TYPE OF MATERIAL					
SIZE OF TEST SAMPLE					
HARDNESS / DUROMETER READING					

testers located in the Quality Office

QC 18 INSPECTION	ENGINEERING SIGNOFF (if required)
INSPECTED BY: <u>AT</u> DATE: <u>18/07/18</u>	SIGNED OFF BY: _____ DATE: _____

Attach this inspection sheet with the corresponding material cert and remit to be scanned and received in